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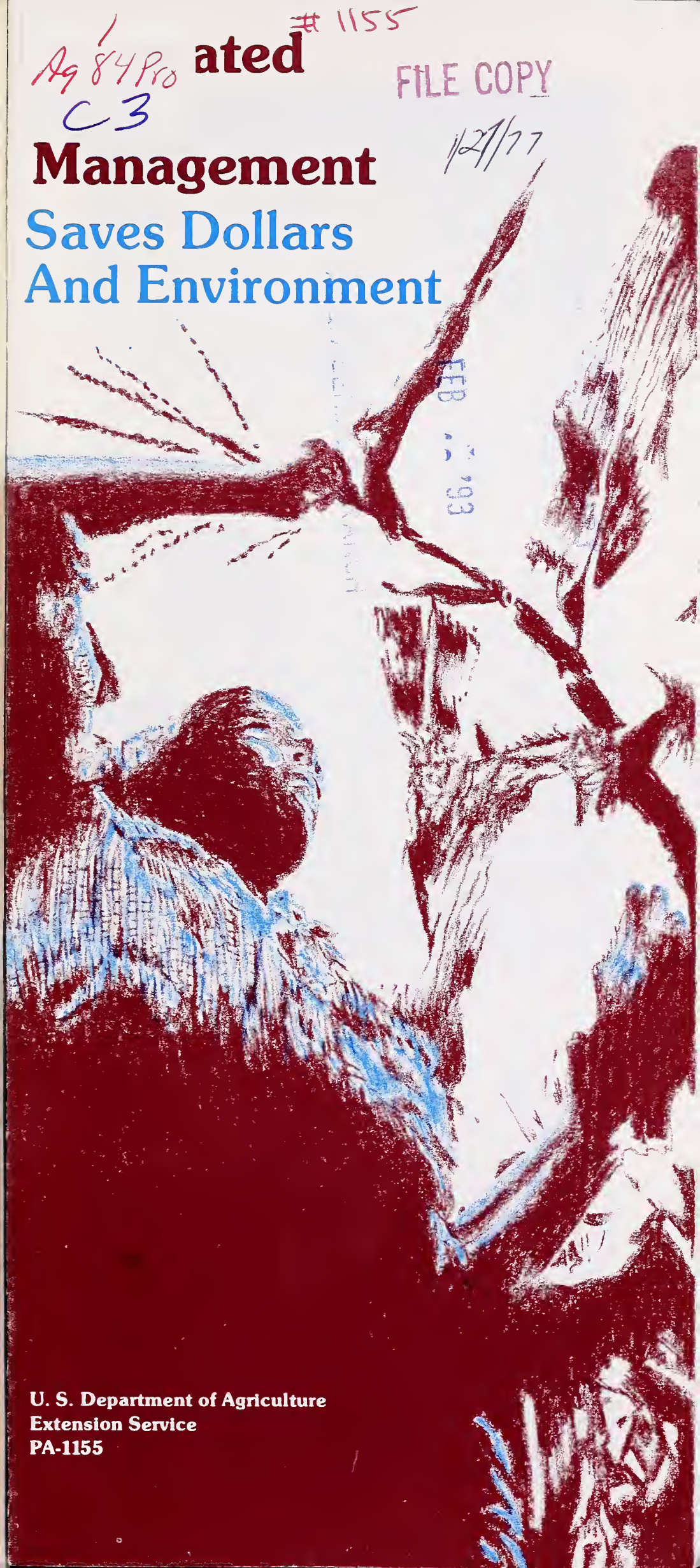
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Management Saves Dollars And Environment

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Cash gains for farmers . . . savings for consumers . . . a better environment for all of us . . . may come out of a new approach called “integrated pest management,” or “IPM” for short.

IPM Is New

What is integrated pest management? It's a system that relies heavily on “scouts” going into the farmer's fields to examine crops and check on—or predict—the number of plant pests. Insect populations are always determined in scouting, but other pests, such as weeds, nematodes, and disease organisms, can be included.

Expert agricultural consultants then consider existing or predicted pest numbers, along with data on local weather, expected yield, harvest dates, etc. They put all the available information together into an integrated management system and come up with scientific and management advice for growers on the best strategies for suppressing the crop pests effectively and economically.

IPM must be tailored for each farmer. Consultants advise the farmer on how to use the least possible amount of pesticides required to control the pests in his crop, and suggest other management practices that will minimize crop losses from pests.

That's good for our total environment, too.

IPM means dollar savings for the farmer in buying pesticides, and lower costs for the labor, equipment, and fuel to apply them. For consumers, IPM could lead to lower food costs as farmers' savings are passed along.

Pest Management Is Not New

For many years farmers rotated their crops, treated them with pesticides, and did what they could to eliminate or at least reduce pest damage. But they usually did not have adequate knowledge of pests or available technology.

Too often, they've used heavy, repeated applications of pesticides that created still more problems. Often they applied pesticides according to the calendar, without knowing whether pests were serious or even present in their fields. (Pest outbreaks are not uniform in a community, and differ from field to field even on the same farm.)

Some pests built up resistance to chemicals. Secondary insect and weed pests emerged. And unnecessary amounts of pesticides were introduced into the environment. Too much pesticide, wrong timing, and mixes that kill beneficial as well as pest organisms have cost farmers and the rest of us—financially and environmentally.

How IPM Works

Three keys to a successful integrated pest management program are *prevention*, *monitoring*, and *control*.

Prevention includes rotating crops, destroying plant residues that can harbor pests, conserving natural enemies of pests by selective use of pesticides, planting resistant crop varieties, and other cultural practices.

Monitoring uses scouts in the field to check plants, animals, and soil for pests. Scouting fields can be supplemented by improved pest forecasting, using knowledge of weather, crop history and growth, and pest behavior and development.

Control includes using chemical treatment only when necessary to prevent economically important damage to the crop. It includes saving beneficial insects that may help destroy the pests that damage crops. The purpose is not to get rid of all pests but to hold damage to an economically acceptable

level. Control includes planning to prevent or reduce pest populations later in the year, on the next crop, or in an adjoining field.

Pilot Projects

The IPM idea has been widely demonstrated in recent U.S. Department of Agriculture (USDA) sponsored pilot projects in more than 30 states. IPM is gaining acceptance and is being put to practical use in most states.

In 1971, USDA began pilot projects to demonstrate to farmers and others that crop pests can be controlled at less cost and more efficiently through an IPM program.

IPM started with two projects—one in North Carolina on tobacco insects and another in Arizona on cotton insects. Since then, there have been more than 50 projects on 23 crops, and two projects involving livestock pests.

Accurate records are kept for each field. In some states all the known data from a farmer's field goes into a central computer, usually at the state land-grant university where the Extension pest management specialist is headquartered.

In Indiana, for example, weather data from all over the state is automatically and continuously recorded by the Purdue University campus weather station. This data, along with the count of insect numbers, is used to predict increases of alfalfa insects. If it looks as if weevils are increasing, the pest management specialist informs the county agent, who then advises the farmer to spray for weevils, or to cut hay—an alternate control method—depending on the stage of alfalfa growth and weather forecasts.

Farmers like the IPM program. One farmer said there aren't enough hours in the day for him to check his many acres of corn for insects and weeds. Besides, he said he isn't always sure what to look for. Farmers feel this is so for pests on many crops.

A Michigan apple grower now sprays only when insect and disease problems are predicted, instead of by the calendar. Ground cover under the trees is managed to conserve natural enemies of pest mites.

A pear grower in California, through careful and reduced use of pesticides, has saved thousands of

dollars a year since he joined the program. He applies insecticides, miticides, and fungicides only when they're needed.

Oklahoma, Virginia, and other states are using mobile diagnostic laboratories to help farmers identify pests. These labs put the pest management specialist, equipped with modern scientific equipment, directly into the field, saving valuable time, as problems can be diagnosed on the spot.

An Oklahoma county Extension agent said IPM has helped increase peanut yields by as much as 600 pounds an acre on farms participating in the program in his county.

Farmers are not the only users of IPM. A number of Maryland commercial sweet corn processors employ scouts and "black light" traps to check fields of contracted sweet corn for insects. Maryland soybean farmers are using a tiny parasitic wasp grown in a nurse crop of early planted beans on their farms. The wasps spread to other fields from the nurse crops and kill the Mexican bean beetle. This program has been so successful that these farmers seldom spray pesticides.

Costs for scouting or monitoring fields for pests may be as low as \$2 per acre for grain sorghum and corn. For crops such as vegetables, tobacco, and fruit trees, costs can be as high as \$25 an acre if insects, diseases, weeds, and nematodes are monitored. These programs are financially sound for farmers because IPM is designed to manage key pest problems for each farmer.

IPM educational programs have stimulated interest in, and increased, the number of private consultants offering IPM advisory services. Also, many farmers' cooperatives now offer IPM services.

Benefits of IPM

Farmers who use IPM discover many benefits. Here are some of them . . .

- Yields are maintained at the expected level, or have actually increased, compared with those where conventional spray programs are used. In situations where pests once were not being effectively controlled, farmers now have increased yields and profits.



- Natural enemies of the pests are conserved or increased in the fields.
- Net profits to farmers increase more than enough to offset the cost of IPM advisory services.
- Sprays are timed for maximum effectiveness.
- Pesticide resistance and secondary pest resurgence problems are minimized.

The benefits of introducing fewer pesticides into the environment are obvious and are praised by farmers and the public. There is less potential for pesticide contamination of crops, soil, and water, and less exposure of people to pesticides.

A Promising Future

What about the future? Some think IPM will do away with pesticides. This is not the case. Pesticides will be around for a long time and are essential to producing the food and fiber this country needs. For most crops, pests cannot be managed without highly effective pesticides. What IPM has done is demonstrate that there are *better* ways to use pesticides. It has also helped reduce the amount of pesticides being used on farms.

Pest problems will change over the years, and as they change, IPM programs must change too. The race between population growth and food and fiber production has led to a tremendous intensification of agriculture. As pesticides become fewer and more expensive, integrated pest management is helping farmers stay in the race.

Farm use of IPM will expand rapidly in the next few years. The Cooperative Extension Service, the State Agricultural Experiment Stations, and the U.S. Department of Agriculture are conducting research and educational programs to improve IPM.

The Cooperative Extension Service can teach the principles of IPM to farmers. Extension also works closely with farmer cooperatives, commercial agricultural consultants, and industries interested in providing farmers with IPM advisory services.

Consult your county agricultural Extension office for more information about IPM programs in your area.

The Extension Service of the U.S. Department of Agriculture offers its programs to all eligible persons regardless of race, color, or national origin, and is an equal opportunity employer.

Cooperative Extension Work: United States Department of Agriculture and State Land-Grant Universities cooperating.

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